

Message

---

**From:** Subramaniam, Ravi [Subramaniam.Ravi@epa.gov]  
**Sent:** 11/22/2017 2:07:55 PM  
**To:** Fritz, Jason [Fritz.Jason@epa.gov]; Vulimiri, Suryanarayana [Vulimiri.Sury@epa.gov]; Bateson, Thomas [Bateson.Thomas@epa.gov]; Glenn, Barbara [Glenn.Barbara@epa.gov]; Kraft, Andrew [Kraft.Andrew@epa.gov]; Makris, Susan [Makris.Susan@epa.gov]; Segal, Deborah [Segal.Deborah@epa.gov]; Whalan, John [Whalan.John@epa.gov]  
**CC:** Ramasamy, Santhini [Ramasamy.Santhini@epa.gov]; Bussard, David [Bussard.David@epa.gov]  
**Subject:** RE: Hot off the press - on formaldehyde

Ha ha. . . that's a good one, Jason. And of course, where else but RTP.

-

*Ravi.*

---

Ravi Subramaniam  
RRB 51237/ (202) 564-2445 (o) Ex. 6 - Personal Privacy

---

---

**From:** Fritz, Jason  
**Sent:** Wednesday, November 22, 2017 9:06 AM  
**To:** Vulimiri, Suryanarayana <Vulimiri.Sury@epa.gov>; Bateson, Thomas <Bateson.Thomas@epa.gov>; Glenn, Barbara <Glenn.Barbara@epa.gov>; Kraft, Andrew <Kraft.Andrew@epa.gov>; Makris, Susan <Makris.Susan@epa.gov>; Segal, Deborah <Segal.Deborah@epa.gov>; Subramaniam, Ravi <Subramaniam.Ravi@epa.gov>; Whalan, John <Whalan.John@epa.gov>  
**Cc:** Ramasamy, Santhini <Ramasamy.Santhini@epa.gov>; Bussard, David <Bussard.David@epa.gov>  
**Subject:** RE: Hot off the press - on formaldehyde

Thanks Sury!  
It's a good time of year for turkey...  
jf

---

**From:** Vulimiri, Suryanarayana  
**Sent:** Wednesday, November 22, 2017 8:27 AM  
**To:** Bateson, Thomas <Bateson.Thomas@epa.gov>; Glenn, Barbara <Glenn.Barbara@epa.gov>; Fritz, Jason <Fritz.Jason@epa.gov>; Kraft, Andrew <Kraft.Andrew@epa.gov>; Makris, Susan <Makris.Susan@epa.gov>; Segal, Deborah <Segal.Deborah@epa.gov>; Subramaniam, Ravi <Subramaniam.Ravi@epa.gov>; Vulimiri, Suryanarayana <Vulimiri.Sury@epa.gov>; Whalan, John <Whalan.John@epa.gov>  
**Cc:** Ramasamy, Santhini <Ramasamy.Santhini@epa.gov>; Bussard, David <Bussard.David@epa.gov>  
**Subject:** Hot off the press - on formaldehyde

<< File: Mundt et al 2017\_Eupub.pdf >>

1. Regul Toxicol Pharmacol. 2017 Nov 17. pii: S0273-2300(17)30363-X. doi: 10.1016/j.yrtph.2017.11.006. [Epub ahead of print]

## Six years after the NRC Review of EPA's

# Draft IRIS Toxicological Review of Formaldehyde: Regulatory implications of new science in evaluating formaldehyde leukemogenicity.

Mundt KA<sup>1</sup>, Gentry PR<sup>2</sup>, Dell LD<sup>2</sup>, Rodricks JV<sup>2</sup>, Boffetta P<sup>3</sup>.

Author information:

1

Environment and Health, Ramboll Environ US Corporation, Amherst, MA, USA.  
Electronic address: [kmundt@ramboll.com](mailto:kmundt@ramboll.com).

2

Environment and Health, Ramboll Environ US Corporation, Amherst, MA, USA.

3

Icahn School of Medicine at Mount Sinai, New York, USA.

## Abstract

Shortly after the International Agency for Research on Cancer (IARC) determined that formaldehyde causes leukemia, the United States Environmental Protection Agency (EPA) released its Draft IRIS Toxicological Review of Formaldehyde, also concluding that formaldehyde causes leukemia. Peer review of the EPA Draft IRIS Assessment by a National Academy of Science committee noted that "causal determinations are not supported by the narrative provided in the draft" {NRC 2011}. They offered recommendations for improving the IRIS review and identified several important research gaps. Over the six years since the NRC peer review, significant new science has been published. We identify and summarize key NRC recommendations and map them to this new science, including extended analysis of epidemiological studies, updates of earlier occupational cohort studies, toxicological experiments using a sensitive mouse strain, mechanistic studies examining the role of exogenous versus endogenous formaldehyde in bone marrow, and several critical reviews. With few exceptions, new findings are consistently negative, and integration of all available evidence challenges the earlier conclusions that formaldehyde causes leukemia. Given formaldehyde's commercial importance, environmental ubiquity and endogenous production, accurate hazard classification and risk evaluation of whether exposure to formaldehyde from occupational, residential and consumer products causes leukemia are critical.

Copyright © 2017. Published by Elsevier Inc.